

## Claims

1. A transponder for a tire condition monitoring apparatus that detects condition of a tire and wirelessly  
5 transmits data representing the detected condition in response to radio waves having a field intensity equal to or greater than a predetermined level:

wherein the transponder is provided in a tire valve.

10 2. The transponder of a tire condition monitoring apparatus according to claim 1:

wherein the transponder is embedded in the tire.

3. The transponder of a tire condition monitoring  
15 apparatus according to claim 1:

wherein the transponder includes:

a coil antenna, which is induced by radio waves having a field intensity equal to or greater than a predetermined level to generate electricity; and

20 a condition detecting device for detecting condition of the tire;

wherein, based on the electricity induced by the coil antenna, the transponder detects condition of the tire with the condition detecting device and wirelessly transmits data  
25 representing the detected condition.

4. The transponder of a tire condition monitoring apparatus according to claim 3, further comprising:

a pair of annular magnetic plates, wherein the magnetic  
30 plates are each provided on one of an outer circumference and an inner circumference of the coil antenna, respectively.

5. The transponder of a tire condition monitoring apparatus according to claim 3, further comprising:

35 a pair of annular magnetic plates, wherein the magnetic

plates are each provided on one of axial end faces of the coil antenna, respectively.

6. An apparatus for monitoring condition of tires of a vehicle, the apparatus comprising:

a transmitter-receiver that transmits radio waves having a field intensity equal to or greater than a predetermined level at a predetermined timing; and

transponders, wherein each transponder is provided in one of the tires;

wherein each transponder includes:

a pressure sensor for measuring the air pressure of the corresponding tire; and

a coil antenna, wherein, when receiving the radio waves, the coil antenna induces electricity for activating the pressure sensor, and transmits the air pressure data measured by the pressure sensor.

7. The tire condition monitoring apparatus according to claim 6, wherein each transponder is embedded in the corresponding tire.

8. The tire condition monitoring apparatus according to claim 6, wherein a pair of annular magnetic plates are provided for each transponder, wherein the magnetic plates of each transponder are each provided on one of an outer circumference and an inner circumference of the corresponding coil antenna, respectively.

9. The tire condition monitoring apparatus according to claim 6, wherein a pair of annular magnetic plates are provided for each transponder, wherein the magnetic plates of each transponder are each provided on one of axial end faces of the corresponding coil antenna, respectively.